

Abstract Submitted  
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**Itinerant ferromagnetism in the As 4*p* conduction band of Ba<sub>0.6</sub>K<sub>0.4</sub>Mn<sub>2</sub>As<sub>2</sub> identified by x-ray magnetic circular dichroism** B. G. UELAND, ABHISHEK PANDEY, A. SAPKOTA, Y. LEE, Ames Laboratory, Dept. of Physics and Astronomy, Iowa State University, Y. CHOI, D. HASKEL, R. A. ROSENBERG, J. C. LANG, Advanced Photon Source, Argonne National Laboratory, B. N. HARMON, D. C. JOHNSTON, A. KREYSSIG, A. I. GOLDMAN, Ames Laboratory, Dept. of Physics and Astronomy, Iowa State University — X-ray magnetic circular dichroism (XMCD) measurements on single-crystal and powder samples of Ba<sub>0.6</sub>K<sub>0.4</sub>Mn<sub>2</sub>As<sub>2</sub> show that the ferromagnetism (FM) below  $T_C \approx 100$  K arises in the As 4*p* conduction band. No XMCD signal is observed at the Mn x-ray absorption edges, however, a clear XMCD signal is found below  $T_C$  at the As *K* edge which increases with decreasing temperature. The XMCD signal is absent with the beam directed parallel to the crystalline *c* axis, indicating that the ordered orbital moment lies in the basal plane of the tetragonal lattice. These results show that the previously reported itinerant FM is associated with the As 4*p* conduction band and that distinct local-moment antiferromagnetism and itinerant FM coexist at low temperature.

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